

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

This application is an RCE application of U.S. Patent application S.N. 09/853,784. By the foregoing amendment, claim 1 has been amended. Claims 1-9 remain pending.

In the Office Action mailed August 23, 2002, the Examiner repeats the previous rejection relying on U.S. Patent No. 5,521,429 to Aono et al. alone. To the extent this rejection might still be applied to claims presently pending in this application, it is respectfully traversed as follows.

The Examiner has evidently overlooked the limitation of claim 1 that clearly sets forth that the thick portion of the external connection electrode is exposed only at the mounting surface of the resin package. This limitation was emphasized in the Remarks of the Amendment filed on May 30, 2002. This limitation is equivalent to setting forth that the thick portion of the external connection electrode is not exposed at the other surfaces of the resin package (including the side surfaces of the resin package). To emphasize this point, claim 1 has been amended to recite that "the thick portion is" not exposed at any other surface of the package.

The technical significance of the present invention defined in amended claim 1 is fully described in paragraphs 0045 and 0046 (pages 11 and 12) of the present specification. Briefly, if the thick portion is exposed not only at the mounting surface (bottom surface in the embodiment) but also at any one of the side surfaces of the resin package (as shown in Fig. 8), a deposit of bonding solder 60 inevitably flows only on the side surface 3a (or 20a') due to surface

tension and bulges laterally for merging with a solder deposit for a nearby packaged semiconductor device. As a result, it becomes difficult to mount a plurality of semiconductor chips at a high density. The present invention solves this problem by exposing the thick portion only at the mounting surface of the resin package, as clearly shown in Figs. 1 and 4.

In U.S. Patent No. 5,521,499 to Aono et al., a thick portion of each lead 12 (see Figs. 1 and 2) projects beyond a side surface of the resin package 14 and is thus considered to be exposed not only at the mounting surface of the package 14, but also at the side surface of the package 14. As a result, a deposit of solder applied to the lower surface of the lead 12 flows onto the exposed edge face of the lead for merging with a solder deposit for a nearby packaged semiconductor device. Therefore, this reference is fundamentally different from the present invention defined in amended claim 1.

In view of the foregoing all of the claims in this case are believed to be in condition for allowance. Should the Examiner have any questions or determine that any further action is desirable to place this application in even better condition for issue, the Examiner is encouraged to telephone applicant's undersigned representative at the number listed below.

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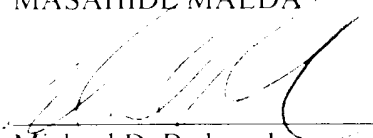
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Attachments: Amended Claim w/ Markings

MDB/ggb

VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

1. (Twice Amended) A semiconductor device comprising:

a semiconductor chip;

an external connection electrode connected to the chip; and

a resin package which covers the chip and has a mounting surface;

wherein the electrode includes a thick portion and a thin portion, the thick portion being exposed to outside only at the mounting surface of the package, the thick portion being not exposed at any other surface of the package.

2. (Unchanged)

3. (Unchanged)

4. (Unchanged)

5. (Unchanged)

6. (Unchanged)

7. (Unchanged)

8. (Unchanged)

9. (Unchanged)